

HEAT SENSITIVE TYPE FLOW RATE DETECTOR

Patent Number: JP8313318
Publication date: 1996-11-29
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Requested Patent: ☐ JP8313318
Application Number: JP19950119960 19950518
Priority Number(s):
IPC Classification: G01F1/68; G01P5/10
EC Classification:
Equivalents: JP3331814B2

Abstract

PURPOSE: To shorten a time for attaining the thermal equilibrium condition of respective portions, and to improve responsiveness and measuring accuracy by setting the resistance of a heating portion to be several times or more as high as the resistance of a lead portion, and embedding one end of a heater in the interior of a heat insulating hold member.

CONSTITUTION: The resistance R_h of a meander-like heating portion 3a with approximately uniform width, which is formed by providing a resistance film 3 in a range of 40 to 80% from one end of an insulating board 2 in a lengthwise direction, is five time or more as high as the resistance R_s of a lead portion 3b, which is provided continuing with the heating portion 3a as far as the other end of the board 2. Since the ratio R_s/R_h of both resistances R_h , R_h becomes small, a heating quantity flowing to fluid via a hold member 5 becomes small so that a starting time is reduced. Since an area occupied by the film 3 is large in the area of the board 2, in detecting the temperature change of the board 2 by the film 3 no response delay is allowed. Since the one end of a heater 1, one part of the lead portion 3b, an electrode portion 3c, and the like are sealed inside the member 5, the heating quantity flowing to liquid is reduced. Thereby, a time for attaining the thermal equilibrium condition is shortened so that responsiveness and measuring accuracy are improved.

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(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平8-313318

(43) 公開日 平成8年(1996)11月29日

(51) Int.Cl. ⁶	識別記号	庁内整理番号	F I	技術表示箇所
G 0 1 F 1/68			G 0 1 F 1/68	
G 0 1 P 5/10			G 0 1 P 5/10	K

審査請求 未請求 請求項の数 3 O L (全 7 頁)

(21) 出願番号 特願平7-119960

(22) 出願日 平成7年(1995)5月18日

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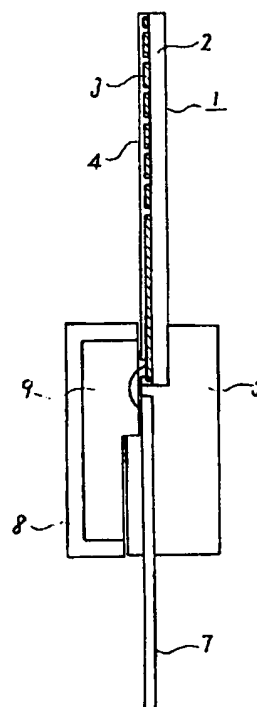
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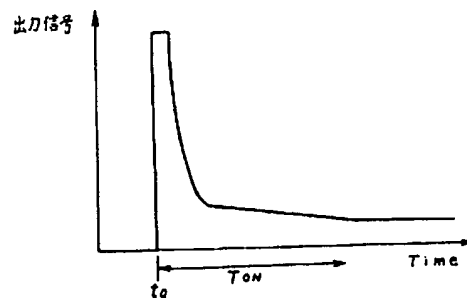
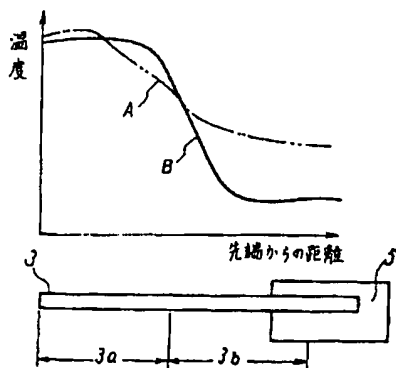
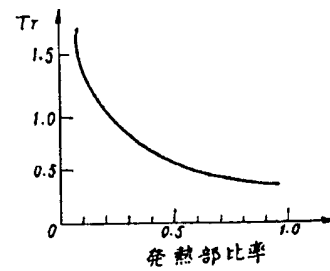
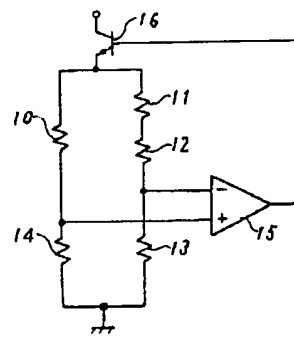
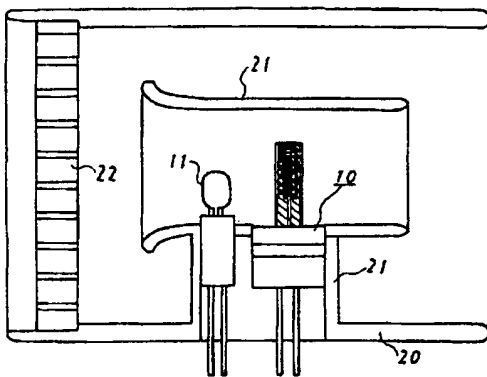
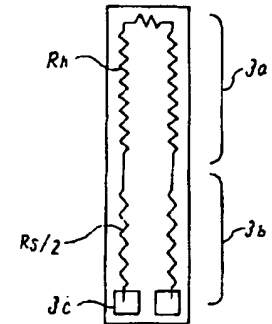
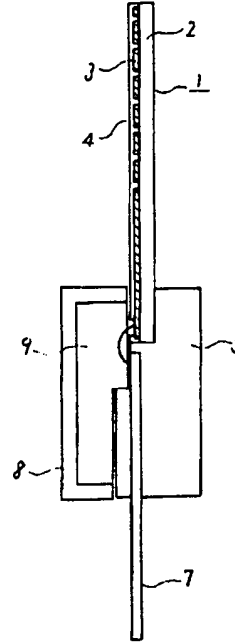
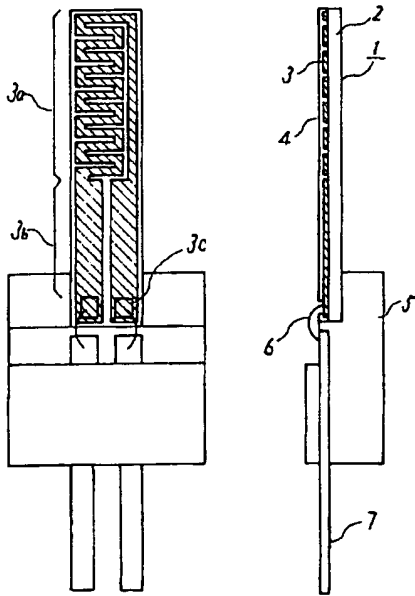
(54) 【発明の名称】 感熱式流量検出装置

(57) 【要約】

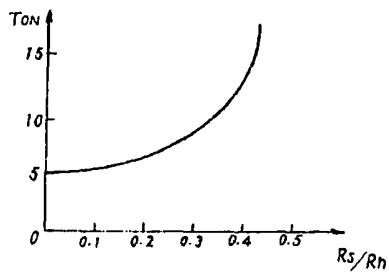
【目的】 感熱式流量検出装置の起動時間を短縮するとともに、流量変動に対する応答性と計測精度を改善する。

【構成】 流量検出素子の発熱部における温度依存性抵抗膜の表面積を基板面積の50%以上にするとともに発熱部抵抗をリード部抵抗の5倍以上とし、接続部のボンディングワイヤを保持部材内部に埋設して、流量検出素子の保持部材以外の部分を流路中に配設した。

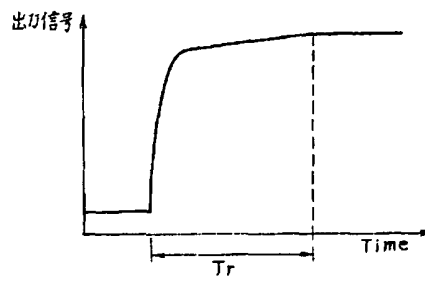




【図8】

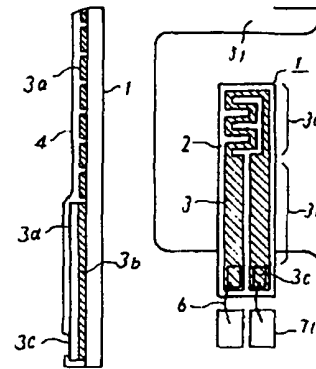


【図9】



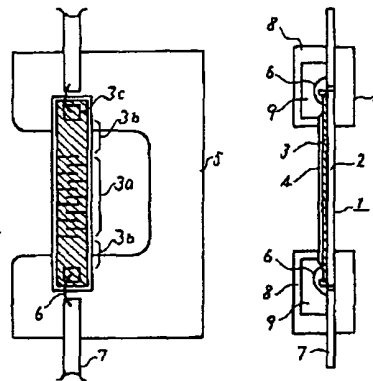
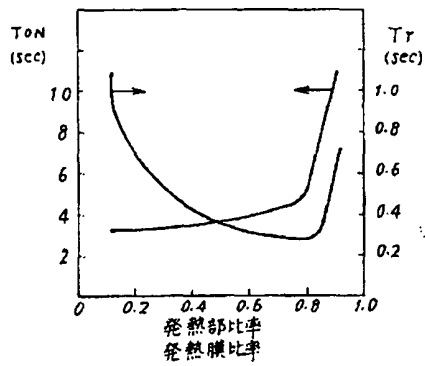
【図14】

【図16】



【図10】

【図15】



【図17】

